bromoperoxidase isolated from *Fucus*, which, according to the cited references, has a molecular weight of 64-65 kDa, is therefore not within the scope of the pending claims as amended. As such, Applicant respectfully requests that the rejections under 35 USC §102 be withdrawn.

The Examiner bears the initial burden of factually supporting a prima facie case of obviousness. To establish a prima facie case of obviousness, three criteria must be met. First, there must be some suggestion or motivation provided by prior art or the general knowledge one skilled artisan is expected to have to make the modification; second, there must be a reasonable expectation of success; third, prior art must teach or suggest all elements of the claims. MPEP §2142.

The two cited references do not disclose the amino acid sequence of the vanadium bromoperoxidase, let alone the significance of the 441-676 region of SEQ ID NO:2. The Examiner has not shown what in the two references or any prior art teaches or suggests to one of ordinary skill in the pertinent art the role of the 441-676 segment of SEQ ID NO: 2 in maintaining the catalytic activity of the enzyme. More importantly, the Examiner has not identified anything in the cited references that would lead one of skill to prepare a fragment with a molecular weight of 60 kDa or less. There is no showing that the fragment as claimed was known or suggested to be sufficient to retain the enzymatic activity. Since no prima facie obviousness has been established, Applicant respectfully requests the withdrawal of the rejections under 35 USC §103.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is urged. If the Examiner believes a telephone conference would aid in the prosecution of this case in any way, please call the undersigned at 415-576-0200.

Respectfully submitted,

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APPENDIX A

VERSION WITH MARKINGS TO SHOW CHANGES MADE

16. (Twice Amended) An isolated polypeptide comprising an amino acid sequence having at least 90% amino acid sequence identity to a sequence from residue 441 to residue 676 as set forth in SEQ ID NO:2, wherein the polypeptide catalyzes oxidation of o-dianisidine (ODA) when complexed with a vanadium ion, and has a molecular weight of no more than 60 kDa [about 600 amino acids in length].

APPENDIX B

CLAIMS SUBJECT TO EXAMINATION

16. (Twice Amended) An isolated polypeptide comprising an amino acid sequence having at least 90% amino acid sequence identity to a sequence from residue 441 to residue 676 as set forth in SEQ ID NO:2, wherein the polypeptide catalyzes oxidation of o-dianisidine (ODA) when complexed with a vanadium ion, and has a molecular weight of no more than 60 kDa.

17. (As filed) The isolated polypeptide of claim 16, wherein the polypeptide has at least 80% identity to a polypeptide as set forth in SEQ ID NO:2.

20. (As filed) The isolated polypeptide of claim 16, wherein the polypeptide has a molecular weight of about 58 kD.

21. (As filed) The isolated polypeptide of claim 16, wherein the polypeptide has a molecular weight of about 40 kD.

22. (As filed) The isolated polypeptide of claim 16, wherein the polypeptide is immobilized on a solid surface.

23. (As filed) The isolated polypeptide of claim 16, wherein the polypeptide further comprises a cleavable linker sequence.

24. (As filed) The isolated polypeptide of claim 23, wherein the cleavable linker sequence is an enterokinase cleavable linker sequence.

25. (As filed) The isolated polypeptide of claim 16, wherein the polypeptide further comprises an epitope tag.

26. (As filed) The isolated polypeptide of claim 25, wherein the epitope tag comprises a plurality of histidine residues.

27. (As filed) The isolated polypeptide of claim 16, wherein the polypeptide further comprises a thioredoxin sequence.

28. (As filed) A method for enzymatically halogenating a compound, the method comprising contacting the compound with an isolated polypeptide of claim 16.

29. (As filed) The method of claim 28, wherein the compound is a protein.

30. (As filed) A method for enzymatically oxidizing a compound, the method comprising contacting the compound with an isolated polypeptide of claim 16.